

Appl. No. 10/667,878
Atty. Docket No. CM2517M2C
Amdt. dated 28-Sep-2006
Reply to Office Action of 28-Mar-2006
Customer No. 27752

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REMARKS

Amendments to the Claims

Claims 10-11, 19, 21-22, and 26-35 are pending in the present application. Claims 1-9, 12-18 and 20 were previously canceled. Claims 23-25 have been presently canceled. No additional claims fee is believed to be due.

Claims 19, 28, 32, and 35 have been amended as shown above. Support for this amendment can be found in original claim 25 and at page 7, line 9 to page 9, line 8 of the specification.

It is believed that these changes do not involve the introduction of new matter. Consequently, entry of these changes is believed to be in order and is respectfully requested.

Rejections Under 35 USC 103(a) Over U.S. Patent No. 6,004,355 to Dias et al.

Claims 11, 19, and 21-35 are rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 6,004,355 to Dias et al. ("Dias"). The Examiner asserts that Dias teaches a hair coloring composition comprising an oxidizing agent and a sequestrant (chelant), wherein the composition has a pH of 10, wherein the composition is an aqueous solution, wherein the oxidizing agent comprises from 0.1% to 4% of aqueous hydrogen peroxide, wherein the chelant is present at an amount from 0.01% to 10%, and wherein the composition further comprises an oxidative dye precursor. The Examiner also asserts that Dias teaches a kit comprising an oxidizing agent and one or more coloring agents, as well as methods for coloring hair comprising steps such as those claimed by Applicants. The Examiner acknowledges that Applicants' claims differ from Dias by reciting that the chelant provides a Normalized Shine Ratio of at least about 0.95.

However, the Examiner asserts that, in view of Dias, it would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to formulate a composition which comprises hydrogen peroxide and chelants to arrive at Applicants' claimed invention. More particularly, the Examiner asserts that Dias teaches the ingredients of oxidizing agents and chelants such as glycylamide-N,N'-disuccinic acid (GADS) in the claimed amount, and, thus, one of ordinary skill in the art would expect such a composition to have similar properties to those claimed, absent unexpected results. Applicants respectfully traverse the present rejection based on the following comments.

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Applicants' claimed invention is not obvious in view of Dias. Dias does not teach or suggest all of Applicants' claim limitations and, therefore, does not establish a *prima facie* case of obviousness. See MPEP 2143.03. Alternatively, Applicants' claims are not obvious in view of Dias because the Declaration of Jennifer Mary Marsh submitted previously with the Amendment dated January 13, 2006 (hereinafter referred to as "the Marsh Declaration II" to avoid confusion with the Marsh Declaration filed with a previous Amendment dated June 14, 2005) demonstrates in a manner commensurate with the scope of the current claims that the compositions of the present invention, as currently claimed, possess superior and unexpected properties over compositions comparable to the exemplified compositions of Dias.

First, Dias fails to teach or suggest each and every limitation of Applicants' claimed hair treatment compositions. As currently amended, Applicants' claim 19 recites a composition comprising (a) an oxidizing agent, and (b) a chelant having a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio calculated at pH 10 of at least about 3.20; wherein the chelant is an aminocarboxylic acid chelant selected from ethylenediamine-N,N'-disuccinic acid (EDDS), ethylenediamine-N,N'-diglutamic acid (EDDG), 2-hydroxypropylenediamine-N,N'-disuccinic acid (HPDDS), glycylamide-N,N'-disuccinic acid (GADS), ethylenediamine-N,N'-bis(ortho-hydroxyphenyl acetic acid) (EDDHA), and salts thereof, derivatives thereof and mixtures thereof; and wherein the chelant is in an amount sufficient to provide a Normalized Shine Ratio of at least about 0.95 as measured by the Goniophotometer Damage Assessing Protocol after a 5-Cycle Hair Oxidative Treatment Protocol With 10 Intermediate Washes.

It is believed that Applicants' compositions, which contain the claimed types of chelants in an amount to provide the claimed shine ratio benefit, act to chelate environmental and intrinsic heavy metal ions which would otherwise react with the oxidizing agent to give harmful species, such as free radicals, which damage the hair by oxidizing the disulfide bonds of hair. Consequently, Applicants' compositions provide a good lightening effect to hair during oxidative treatments, such as bleaching and dyeing, yet result in less damage to the hair than that which occurs during the use of known oxidative treatment compositions.

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Dias discloses hair coloring compositions which comprise an oxidizing agent and which also optionally may contain a chelant. Dias broadly discloses a variety of chelants which are suitable for use in the compositions of Dias. Additionally, Dias teaches that chelants may be present in the compositions of Dias at a level from about 0.005% to about 20%, and most preferably from about 0.05% to about 2%. Notably, every composition exemplified in Dias, including Example A, contains the chelant EDTA at a level of 0.1%.

Dias, however, does not teach or suggest to select only those chelants claimed by Applicants (*i.e.*, defined as chelants having a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio calculated at pH 10 of at least about 3.20, and being aminocarboxylic acid chelants selected from the claimed group) from among the variety of chelants generally disclosed in Dias. Further, Dias fails to teach or suggest that the level chelants present in the composition should be selected to provide a particular damage benefit as claimed by Applicants (*i.e.*, defined as an amount sufficient to provide a Normalized Shine Ratio of at least about 0.95).

In contrast to the disclosure of Dias, Applicants' claimed compositions require a chelant having a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio calculated at pH 10 of at least about 3.20, and wherein the chelant is an aminocarboxylic acid chelant selected from ethylenediamine-N,N'-disuccinic acid (EDDS), ethylenediamine-N,N'-diglutamic acid (EDDG), 2-hydroxypropylenediamine-N,N'-disuccinic acid (HPDDS), glycylamide-N,N'-disuccinic acid (GADS), ethylenediamine-N,N'-bis(ortho-hydroxyphenyl acetic acid) (EDDHA), and salts thereof, derivatives thereof and mixtures thereof. While the calculation of this $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio is within the ability of one of ordinary skill in the art, a description of this parameter is provided at page 12, line 12 to page 15, line 13 of the specification. Further, a list of the calculated $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratios for several different chelants is provided at page 15 of the specification. Chelants such as EDDS and EDDHA have a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio of greater than about 3.20, whereas chelants such as EDTA have a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio of less

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than about 3.20 (specifically, EDTA has a $\frac{\log K_{\text{CuL}}}{\log K_{\text{CaL}}}$ ratio of 1.60). Thus, Applicants' compositions, as currently claimed, include chelants such as EDDS, EDDHA, and the other chelants recited in the claimed group, but exclude chelants such as EDTA.

Applicants' claimed compositions also require the chelant to be present in an amount sufficient to provide a Normalized Shine Ratio of at least about 0.95 as measured by the Goniophotometer Damage Assessing Protocol after a 5-Cycle Hair Oxidative Treatment Protocol With 10 Intermediate Washes. This parameter and the associated test method is described at page 24, line 15 to page 25, line 23 of the specification. The Marsh Declaration II demonstrates that compositions comparable to the exemplified compositions of Dias, including Example A of Dias, do not teach or suggest including chelants in an amount to provide a Normalized Shine Ratio of at least about 0.95, as required by Applicants' claims.

In Table 1 of the Marsh Declaration II, it can be seen that Product 9, which comprises 0.1% EDTA, resulted in a Normalized Shine Ratio of 0.85. This value is less than the currently claimed Normalized Shine Ratio of at least about 0.95. Notably, even as the level of EDTA is increased, the resulting Normalized Shine Ratio does not increase. In contrast, Product 3, which comprises 0.1% EDDS, resulted in a Normalized Shine Ratio of 1.01. This value is greater than the claimed Normalized Shine Ratio of at least about 0.95. As the level of EDDS is varied, the resulting Normalized Shine Ratio remains above the claimed value of at least about 0.95. Therefore, the Normalized Shine Ratio required by Applicants' claims is not a physical property taught or suggested by the exemplified compositions of Dias which contain EDTA at a level of 0.1%.

As a result, Dias does not teach or suggest each and every limitation of Applicants' claim 19, as well as claims 11, 21-22, 26-27, and 31, which contain the limitations of claim 19. Additionally, for independent claims 28, 32, and 35, and the claims dependent therefrom, an argument analogous to that for claim 19 can be made. Therefore, Applicants' claims 11, 19, 21-22, and 26-35 are novel and unobvious over Dias.

Second, and alternatively, Applicants' claims are not obvious in view of Dias because the Marsh Declaration II demonstrates in a manner commensurate with the scope of Applicants' claims that the compositions of the present invention, as currently claimed, possess superior and unexpected properties over compositions comparable to the

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exemplified compositions of Dias. Specifically, the compositions of the present invention unexpectedly result in significantly less damage to hair that has been treated with the compositions.

As shown in Table 1 of the Marsh Declaration II, and as discussed above, the Normalized Shine Ratio, which is an indication of hair damage, is consistently better for compositions comprising EDDS at various levels than for compositions comprising EDTA at various levels. Importantly, as discussed above, *EDDS is representative* of a class of chelants which are within the scope of Applicants' claims, including the aminocarboxylic acid chelants recited in the claimed group, whereas EDTA is outside of the scope of Applicants' claims, because Applicants' claims require chelants having a $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio calculated at pH 10 of at least about 3.20. Specifically, the $\frac{\log K_{CuL}}{\log K_{CaL}}$ ratio of EDDS is about 3.76, and the value of the same parameter for EDTA is about 1.60.

Referring again to Table 1, as the Normalized Shine Ratio is indexed against the Normalized Shine value of virgin hair, a Normalized Shine Ratio value of greater than 1.0 means that the tested hair has a higher Normalized Shine value (*i.e.*, appears less damaged) than virgin hair. Conversely, a Normalized Shine value of less than 1.0 means that the tested hair has a lower Normalized Shine value (*i.e.*, appears more damaged) than virgin hair. For example, it can be seen that Product 3, which comprises 0.1% EDDS, resulted in a Normalized Shine Ratio of 1.01, whereas Product 9, which comprises 0.1% EDTA, resulted in a Normalized Shine Ratio of 0.85. Thus, the hair treated with Product 3 appears less damaged than virgin hair, and the hair treated with Product 9 appears more damaged than virgin hair. Applicants respectfully submit that these results are clearly superior and unexpected.

To further illustrate the superior and unexpected properties of the compositions of the present invention, Table 2 of the Marsh Declaration II provides the results of visual damage assessment with a scanning electron microscope of the treated hair. Notably, Product 3, which comprises 0.1% EDDS, resulted in a Damage Index of 8.4. In contrast, Product 9, which comprises 0.1% EDTA, resulted in a Damage Index of 63.6. Thus, the hair treated with Product 9 was significantly more damaged than hair treated with Product 3. Applicants respectfully submit that these results also are superior and unexpected.

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Accordingly, the Marsh Declaration II demonstrates that the compositions of the present invention, as currently claimed, possess superior and unexpected properties over the compositions comparable to the exemplified compositions of Dias. These demonstrated results are commensurate in scope with Applicants' claims, which require chelants having a $\frac{\log K_{\text{CuL}}}{\log K_{\text{CaL}}}$ ratio calculated at pH 10 of at least about 3.20, because

EDDS is representative of chelants having a value of such a parameter of greater than 3.20, and EDTA is representative of chelants having a value of such a parameter of less than 3.20.

Therefore, Applicants' claims 11, 19, and 21-22, and 26-35 are novel and unobvious over Dias.

Rejections Under 35 USC 103(a) Over U.S. Patent No. 6,004,355 to Dias et al. in view of U.S. Patent No. 5,100,436 to Wenke

Claim 10 is rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,004,355 to Dias et al. ("Dias") in view of US Patent No. 5,100,436 to Wenke ("Wenke"). The Examiner asserts that Dias teaches hair coloring compositions, as described above, wherein the compositions are thickened aqueous compositions. The Examiner acknowledges that Dias does not teach a hair treatment composition in the form of an oil-in-water emulsion. Then, the Examiner asserts that Wenke teaches a composition comprising oxidative dye precursors, oxidizing agents, and chelating agents, wherein the composition may be in the form of an emulsion, suspension, lotion, or gel. Thus, the Examiner concludes that it would have been obvious to one of skill in the art to formulate the composition of Dias in an emulsion because Wenke teaches different forms of hair dyeing compositions, absent unexpected results. Applicants respectfully traverse the present rejection based on the following comments.

The combination of Dias and Wenke does not teach or suggest all of Applicants' claim limitations and, therefore, does not establish a *prima facie* case of obviousness. See MPEP 2143.03. Applicants' claim 10 contains the limitations of currently amended claim 19. As discussed above, Applicants' claim 19, as currently amended, recites a comprising (a) an oxidizing agent, and (b) a chelant having a $\frac{\log K_{\text{CuL}}}{\log K_{\text{CaL}}}$ ratio calculated at pH 10 of at

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least about 3.20; wherein the chelant is an aminocarboxylic acid chelant selected from ethylenediamine-N,N'-disuccinic acid (EDDS), ethylenediamine-N,N'-diglutamic acid (EDDG), 2-hydroxypropylenediamine-N,N'-disuccinic acid (HPDDS), glycylamide-N,N'-disuccinic acid (GADS), ethylenediamine-N,N'-bis(ortho-hydroxyphenyl acetic acid) (EDDHA), and salts thereof, derivatives thereof and mixtures thereof; and wherein the chelant is in an amount sufficient to provide a Normalized Shine Ratio of at least about 0.95 as claimed.

Although Wenke discloses that its compositions may be in the form of an emulsion, neither Dias nor Wenke teach or suggest the selection of the particular chelants which have the particular physical properties recited in Applicants' claims.

Therefore, the combination of Dias and Wenke fails to establish a *prima facie* case of obviousness with respect to Applicants' currently amended claim 19, as well as Applicants' claim 10. As a result, Applicants' claim 10 is novel and nonobvious over Dias in view of Wenke.

Alternatively, Applicants' claim 10 is not obvious over Dias in view of Wenke because, as discussed above, the Marsh Declaration II demonstrates that the compositions of the present invention possess superior and unexpected properties over the compositions of Dias. Although Wenke discloses that its hair coloring compositions may be in the form of emulsions, suspensions, lotions, or gels, Wenke fails to provide a teaching or suggestion for achieving the superior results of Applicants' claimed compositions.

Therefore, Applicants' claim 10 is novel and nonobvious over the combination of Dias and Wenke.

CONCLUSION

In view of the claim amendments and the remarks presented herein, it is requested that the Examiner reconsider and withdraw the present rejections. Early and favorable action in the case is respectfully requested.

Applicant has made an earnest effort to place their application in proper form and to distinguish the invention as now claimed from the applied references. In view of the foregoing, Applicant respectfully requests reconsideration of this application and allowance of Claims 10-11, 19, and 21-22, and 26-35.

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Respectfully submitted,
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